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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kevin M. Ferguson

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10/14/2008

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EXAMINER

YAARY, MICHAEL D

ART UNIT

PAPER NUMBER

2193

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/804,663	Applicant(s) FERGUSON, KEVIN M.	
	Examiner MICHAEL YAARY	Art Unit 2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-7 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welland (US Pat. 5,987,487) in view of Levien (US Pat. 3,337,264) and in view of Applicant Admitted Prior Art (hereafter AAPA).

4. Welland and Levien was cited in the previous office action dated 01/07/2008.

5. **As to claim 1**, Welland discloses a filter having a variable passband (abstract and column 1, lines 16-30 disclose processing digital signals) comprising:

A filter circuit having as inputs a signal to be filtered (a forward signal) and a reverse version of the signal to be filtered (a reverse signal) (figure 2 discloses A, forward, and B, reverse (or inverse), signals being inputs to the circuit.).

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6. Welland does not disclose having as an output a filtered signal as a function of a variable coefficient.

However, Levien discloses having as an output a filtered signal as a function of a variable coefficient (Column 7, lines 35-44 disclose a signal output as a function of variable coefficients.).

7. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Welland, by implementing coefficients to generate an output signal, as taught by Levien, for the benefit of minimizing computational complexity in the filtering system.

8. The combination of Welland and Levien do not disclose a variable equivalent sample rate coefficient converter having an initial coefficient as an input together with a variable resampling rate parameter that determines the variable passband, and providing as an output the variable coefficient as a function of the variable resampling rate parameter.

However, AAPA discloses a variable equivalent sample rate coefficient converter having an initial coefficient as an input together with a variable resampling rate parameter that determines the variable passband, and providing as an output the variable coefficient as a function of the variable resampling rate parameter (Prior art of a variable equivalent sample rate coefficient converter disclosed in figure 1.).

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9. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Welland and Levien, by incorporating a variable equivalent sample rate coefficient converter, as taught by AAPA, in order to produce a continuously variable bandwidth in a signal processing application.

10. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welland, Levien, and AAPA as applied to claim 1 above, and further in view of Glew et al. (hereafter Glew)(US Pat. 5,796,637).

11. Glew was cited in the previous office action dated 01/07/2008.

12. **As to claim 2**, the combination of Welland, Levien, and AAPA disclose means for combining the first and second filtered signals with the forward signal to provide the filtered signal (Welland, the summer used in the circuit of figure 2).

13. The combination of Welland, Levien, and AAPA do not disclose a first IIR filter having the forward signal and the variable coefficient as inputs, and providing as an output a first filtered signal; and a second IIR filter having the reverse signal and the variable coefficient as inputs, and providing as an output a second filtered signal.

However, Glew discloses multiple filtering logic receiving event signals (input signals) and providing output signals for further processing (filter logic in figure 1). Thus one of ordinary skill in the art would be able to apply the teachings of different filter

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logic, as taught by Glew, to the teachings of Welland, Levien, and AAPA. One of ordinary skill in the art at the time of the invention would be motivated to make the combination as to obtain a mechanism for filtering multiple input signals in a more efficient manner.

14. **As to claim 3**, the combination of Welland, Levien, AAPA, and Glew disclose a summing circuit having as inputs the first and second filtered signals and the forward signal, and providing as an output the filtered signal (summing means in figure 2 of Welland).

Allowable Subject Matter

15. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

16. Applicant argues that Welland does not describe a filter circuit and that B reverse in figure 2 is not a reverse version of the signal to be filtered.

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17. As to the argument examiner respectfully disagrees. It is clearly shown in the Welland reference that it does describe a filter circuit. Column 1, lines 12-30; column 13, lines 41-43; column 17, lines 26-43; and column 27, lines 9-64 teach of processing digital signals in digital filters wherein binary numbering systems are used to represent the signals. Thus, the circuit applies both signal A and B reverse in the filter processing.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL YAARY whose telephone number is (571)270-1249. The examiner can normally be reached on Monday-Friday, 8:00 a.m - 5:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis Bullock can be reached on (571) 272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Y./

Examiner, Art Unit 2193

/Lewis A. Bullock, Jr./

Supervisory Patent Examiner, Art Unit 2193